



## Technical Memorandum No. 1: Project Definition

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### Abstract

The purpose of this technical memorandum (TM) is to document the project background, participation, purpose and need statement, option evaluation criteria, and the initial set of option alignments.

### Project Background

In 1997, the Washington Department of Transportation (WSDOT) completed reconstruction of the Spirit Lake Memorial Highway (SR 504) connecting the Mount St. Helens National Monument with Interstate 5 to the west. Twenty years after Mount St. Helens erupted, interest in the volcano remains high, especially in the surrounding rural counties where residents want to improve economic development opportunities related to tourism. As a result of the surrounding counties' efforts, WSDOT is conducting the *SR 504 Feasibility Study*. The purpose of this study is to identify the possible routes, environmental concerns, engineering constraints, construction costs, and economic feasibility of extending the Spirit Lake Memorial Highway, SR 504, from the National Monument to state and federal roads on the eastern side of the monument.

### Project Participation

WSDOT is the lead agency for the SR 504 Feasibility Study. A Technical Advisory Committee (TAC) has been formed, consisting of the U.S. Forest Service (USFS), United State Geological Survey (USGS), Weyerhaeuser, the Southwest Washington Regional Transportation Council (RTC), and the Southwest Washington Regional Transportation Planning Organization (SWRTPO). HDR, Inc. has been retained by WSDOT to conduct the SR 504 Feasibility Study. Lewis County will lead the public involvement effort. A broad-based Public Involvement Committee (PIC) has been formed to provide review, advice, and comment on key aspects of the feasibility study. The PIC will meet three times during the project.

## **TAC Kick-Off Meeting**

On August 14, 2000, the TAC convened to develop the study purpose and need, develop the option evaluation criteria, and to identify the initial highway option alignments.

## **Study Purpose**

The purpose of the SR 504 Feasibility Study is to determine the economic, engineering, and environmental viability of connecting SR 504 to state and federal roads in the vicinity of the Mount St. Helens National Monument.

## **Project Purpose and Need**

The purpose for connecting SR 504 with a state or federal road to the north, south, or east of the Mount St. Helens National Monument is the following:

- To provide a new loop route around the Mount St. Helens National Monument connecting the east and west sides
- To provide a connection that would create a new loop route connecting Mount St. Helens with Mount Rainier, the Columbia Gorge, and eastern Washington

The need for connecting SR 504 with a state or federal road to the north, south, or east of the Mount St. Helens National Monument is the following:

- To improve economic development opportunities in the area surrounding the Mount St. Helens National Monument
- To improve resident and visitor access in the area surrounding the Mount St. Helens National Monument
- To provide a new shorter emergency medical and law enforcement response route
- To provide a year-round emergency evacuation route

## **Identification of Project Issues and Expectations**

Project issues and expectations were developed in the first TAC meeting, the first PIC meeting and the first set of public meetings. The issues and expectations were broken into three categories: environmental, economic, and engineering, realizing that there is overlap between the categories.

## **Environmental Issues and Expectations**

- Impacts to winter range for deer and elk
- Aquatic species
- Slope stability
- ESA and other sensitive species
- Seasonal impacts
- Natural disaster
- Avalanches
- Eruption of Mount St. Helens
- Improved educational/interpretive opportunities
- Tribal impacts
- Impacts to cultural/historical
- FERC relicensing
- Impacts on air/noise
- Impacts on water quality
- Wetlands
- Contiguous parcels
- Public access to otherwise remote areas
- Aesthetics
- Impacts to travel trends
- Impacts to existing visitor centers; need for additional visitor center
- Limited access impacts
- Sustainability of National Monument area as major tourism area
- Additional recreational areas (including winter recreation) along the route

## **Economic Issues and Expectations**

- Regional economic growth or redistribution of economic benefits
- Are communities prepared for growth?
- Community buy-in and support
- Community, regional, state, federal and economic gain and loss (assess all economic development opportunities, not just tourism.)
- Provisions for hotels/motels/campgrounds along the route
- Improved access—both public and private
- Ownership (state, federal, and county)
- Impacts on private/public land ownership and management practices
- Dumping/vandalism/fire hazards/poaching
- Limit land use
- Viewshed management
- Improved law enforcement/emergency access (year-round)
- Federal government involvement in regulating state highways
- Impact to scientific research associated with National Monument
- Build it and they will come

- Need for continual (long-term) evaluation of how the road and supporting services serve the public
- User fees for road and visitor center access
- Funding options
- Funding requirements for roadway support services
- Funding for emergency assistance
- Consideration of the project from a national perspective

### **Engineering Issues and Expectations**

- Comprehensive range of options
- Design standards for state highway or U.S. Forest Service road
- Time savings for traveling public
- Connection to other major destinations (Mount Rainier, Columbia River Gorge)
- East-West destination through-route
- Signage
- Cost – design standards will affect operation and maintenance costs and capital costs
- Scenic parkway versus scenic highway
- Seasonal or year-round use of road
- Safety

### **Option Evaluation Criteria**

After evaluating the project issues and expectations, the following option evaluation criteria were developed. The option evaluation criteria were broken into three categories: environmental, economic, and engineering, realizing that there is overlap between the categories.

#### **Environmental Evaluation Criteria**

- Area and types of wetlands crossed
- Number of stream and major river crossings
- Number of streams crossed with possible salmonids or bull trout
- Encroachment of spotted owl designated critical habitat and/or range; amount of contiguous habitat crossed
- Encroachment of lynx habitat/range; amount of contiguous habitat crossed
- Encroachment of contiguous wolf/bear/wolverine habitat
- Deer/elk winter and summer habitat in corridor
- Total acres of "habitat;" vegetation breakdown by percent montane forest, riparian, hardwood, etc.
- Geologic units

- Ground slope
- Landslides
- Earthquake faults
- Distance and visibility of road from viewing areas
- Land management practices on land visible from road
- Noise sensitive receptors
- Late-successional reserves; managed late-successional areas
- Congressionally reserved areas
- Administratively withdrawn areas
- Roadless areas
- Timber harvest areas
- Consistency with locally adopted land use plans
- Consistency with land management plan of major land owners
- Consistency with national monument management plan
- Consistency with Gifford Pinchot National Forest objectives for trail use and minimizing trail use conflicts
- Consistency with Gifford Pinchot National Forest objectives for established recreation sites
- Identify locations of National Register and state-listed cultural resource sites

### **Economic Evaluation Criteria**

- Degree to which the option provides for local economic growth and/or local economic stability
- Degree to which the option provides for distribution of benefits between local, state, and federal levels
- Degree to which the option provides for distribution of costs

### **Engineering Evaluation Criteria**

- Capital cost
- Topographic indicators
- Effects on traffic (travel time, service level)
- Operation and maintenance costs (year-round and seasonal)
- Number of bridges and culverts
- Geotechnical engineering: degree of challenge (slope stability, geologic hazards, avalanche areas)
- Right-of-way: number of landowners and landowner willingness

## **Initial Set of Alignment Options**

The initial set of alignment options to extend SR 504 are grouped into three categories:

- Five options are being considered to connect to US 12 to the north
- Seven options are being considered to connect to Forest Road 25 to the east
- Two options to connect to Forest Road 90 (or SR 503-S) are being considered to the south

Each of these options is shown on Attachment No. 1 and is described below. [It is assumed that all of the alternatives would include upgrading Forest Road 25 from SR 131 to Forest Road 90 and Forest Road 90 from SR 503 to its intersection with Forest Road 25.]

### **Option 1 (A to B)**

Beginning on SR 504 east of the Hoffstadt Bluff Visitor Center and west of the Hoffstadt Bridge, this alignment extends almost directly north and ties into US 12 west of Riffe Lake, near Mossyrock. This option is approximately 14 miles long.

### **Option 2 (A to C)**

Beginning on SR 504 east of the Hoffstadt Bluff Visitor Center and west of the Hoffstadt Bridge, this alignment extends in a northeasterly direction crossing the Green River between Elk Creek and Shultz Creek. The alignment continues northeasterly to the southeast corner of Riffe Lake where it crosses the Cowlitz River and continues around the east end of the lake. Continuing to the north along Riffe Lake, this option ultimately ties into US 12 near Glenoma. This option is approximately 28 miles long.

### **Option 3 (A to D)**

This option is identical to Option 2 from west to east until it reaches the east end of Riffe Lake. From the east end of the lake, after crossing the Cowlitz River, the alignment heads in a northeasterly direction where it ties into US 12 approximately 2 miles west of Randle. This option is approximately 31 miles long.

### **Option 4 (A to E)**

Beginning on SR 504, this option is identical to Option 2 and 3 up to the southeast corner of Riffe Lake. From there, the alignment extends to the east along the south side of the Cowlitz River and the south side of the Cispus River where it ties into Forest Road 25 about a mile north of the Iron Creek Campground. This option is approximately 30 miles long.

### **Option 5 (A to H to E)**

This option begins in the same location as Options 2, 3, and 4; however, approximately 5 miles after crossing the Green River, the alignment turns to the east where it crosses the National Monument boundary. The alignment then travels in a southeasterly direction along the north side of the Green River through the National Monument and then turns to the east near the Green River trailhead. Approximately 3 miles to the east, it connects with Forest Road 26 near Ryan Lake, and follows the existing road north and then east to the connection onto Forest Road 25 near Iron Creek Campground. This option contains approximately 22 miles of new roadway, and 9 miles of existing roadway.

### **Option 6 (G to C)**

Beginning on SR 504, approximately 2 miles west of the Coldwater Ridge Visitor Center, near the Maratta Creek crossing, this alignment option extends to the north and northwest where it crosses the Green River in the same location as Options 2, 3, 4, and 5. The remaining route to the northeast remains the same as Option 2. This option is approximately 26 miles long.

### **Option 7 (G to D)**

Beginning on SR 504, approximately 2 miles west of the Coldwater Ridge Visitor Center, near the Maratta Creek crossing, this alignment option extends to the north and northwest where it crosses the Green River in the same location as Options 2, 3, 4, and 5. The remaining route to the northeast remains the same as Option 3. This option is approximately 29 miles long.

### **Option 8 (G to E)**

Beginning on SR 504, approximately 2 miles west of the Coldwater Ridge Visitor Center, near the Maratta Creek crossing, this alignment option extends to the north and northwest where it crosses the Green River in the same location as Options 2, 3, 4, and 5. The remaining route to the northeast remains the same as Option 4. This option is approximately 28 miles long.

### **Option 9 (G to H to E)**

Beginning on SR 504, approximately 2 miles west of the Coldwater Ridge Visitor Center, near the Maratta Creek crossing, this alignment option extends to the north and northwest where it crosses the Green River in the same location as Options 2, 3, 4, and 5. The remaining route to the east and then north along Forest Road 26 remains the same as Option 5. This

option contains approximately 19 miles of new roadway, and 9 miles of existing roadway.

#### **Option 10 (F to H to E)**

Beginning on SR 504, approximately 1.5 miles west of Bear Cove, off the easternmost switchback, this alignment option extends to the northeast for approximately 6 miles until it reaches between the Green River trailhead and Green River Horse Camp. The remaining route to the east and then north along Forest Road 26 remains the same as Option 5. This option contains approximately 9 miles of new roadway, and 9 miles of existing roadway.

#### **Option 11 (F to J)**

Beginning in the same location as Options 10, this alignment option extends to the east along the north side of Spirit Lake, connecting onto Forest Road 99 near Meta Lake. The alignment follows the existing road until it ties onto Forest Road 25 near at Wakepish. This option contains approximately 6 miles of new roadway, and 5 miles of existing roadway.

#### **Option 12 (K to I to J)**

Beginning on SR 504, near Hammocks Trailhead on the south side of Coldwater Lake, this alignment option extends to the southeast approximately 1 mile south of Loowit Viewpoint. It then turns further in a southeasterly direction, connecting to Windy Ridge, and follows Forest Road 99 back to Forest Road 25 at Wakepish. This option contains approximately 8 miles of new roadway, and 10 miles of existing roadway.

#### **Option 13 (K to L)**

This option begins in the same location as Option 11; however, approximately 1 mile south of Loowit Viewpoint, it turns directly south crossing the South Fork Toutle River just east of the Sheep Canyon trailhead. The alignment continues to the south past the Blue Lake trailhead angling to the southeast continuing past the Ape Cave and ultimately connecting with Forest Roads 83 and 90 near the northwest end of Swift Reservoir. This option contains approximately 11 miles of new roadway, and 4 miles of existing roadway.

#### **Option 14 (K to M)**

Beginning on SR 504, this alignment is identical to Option 13 down to the vicinity of the Blue Lake trailhead but instead of turning to the southeast, the alignment continues to the south and connects with SR 503-S near the town of Cougar. This option is approximately 20 miles long.